

1. A method for purifying or isolating a recombinant fusion peptide, said method comprising the steps of:

- a) forming a fusion peptide comprising a tag peptide sequence covalently attached to a polypeptide sequence;
- b) contacting the fusion peptide with an enzyme or modified enzyme that specifically binds to the tag peptide sequence to form a complex between the enzyme or modified enzyme and the fusion peptide;
- c) eluting non-complexed peptides to separate non-complexed peptides from the complexed peptide; and
- d) conducting a second elution wherein the fusion peptide is dissociated from the enzyme or modified enzyme;

wherein said method does not require that the tag sequence have a lysine or arginine at its carboxyl terminal to maintain binding.

2. The method of claim 1 wherein the tag sequence is a substrate or inhibitor of the enzyme.

3. The method of claim 1 wherein the enzyme or modified enzyme is linked to a solid substrate.

4. The method of claim 1 wherein the tag sequence binds but is not cleaved by the enzyme.

5. The method of claim 1 wherein a modified enzyme is used, and the modified enzyme is a modified protease wherein the peptide sequence for the active site of said protease has been altered such that it binds, but does not cleave, the tag sequence.

6. The method of claim 5 wherein the modified enzyme is a serine protease in which the active site serine residue has been replaced with a nonactive amino acid such as alanine.

7. The method of claim 1 wherein the capture protein is a modified enterokinase.

8. The method of claim 1 wherein the modified enzyme is a modified psychrophilic enzyme and binding of the tag sequence to the capture protein occurs below the denaturation temperature of the enzyme and elution is performed by raising the temperature to near or above the denaturation temperature of the enzyme.

9. A method for purifying or isolating a recombinant fusion peptide, said method comprising the steps of:

a) forming a fusion peptide comprising a tag peptide sequence covalently attached to a polypeptide sequence, said tag peptide sequence containing a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12 and SEQ ID NO: 13;

b) contacting the fusion peptide with an enzyme or modified enzyme that specifically binds to the tag peptide sequence to form a complex between the enzyme or modified enzyme and the fusion peptide;

c) eluting non-complexed peptides to separate non-complexed peptides from the complexed peptide; and

d) conducting a second elution wherein the fusion peptide is dissociated from the enzyme or modified enzyme;

wherein said method does not require that the tag sequence have a lysine or arginine at its carboxyl terminal to maintain binding.

10. A method for tagging a recombinant peptide, said method comprising the step of forming a fusion peptide comprising a tag peptide sequence covalently attached to a polypeptide sequence, said tag peptide sequence containing a peptide sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12 and SEQ ID NO: 13.